Accommodations Toolkit

Word Prediction: Research

This fact sheet on **word prediction** is part of the *Accommodations Toolkit* published by the National Center on Educational Outcomes (NCEO). It summarizes information and research findings on word prediction as an assessment accessibility feature or accommodation for students with disabilities.[1] The toolkit also contains summary of states' accessibility policies for word prediction (/nceo/accommodations-toolkit/word-prediction/states-accessibility-policies).

What is word prediction? Word prediction is software that suggests words and supports written communication. A predictive word suggestion or list appears when initial letters of a word are entered. Depending on additional features in word prediction software, words may be suggested based upon typing patterns (Evmenova et al., 2010; Sitko et al., 2005).

What are the research findings on who should use this accommodation? Students with challenges with spelling or word recall (Cunningham, 2013, Evmenova et al., 2010, Silió & Barbetta, 2010), as well as students with physical disabilities who have challenges in typing ((Mezei & Heller, 2012) may benefit from using word prediction. Older

students who are able to navigate a word prediction program may find it more useful than younger students (Silió & Barbetta, 2010). Some former English learners with disabilities may also benefit from this accommodation (Silió and Barbetta, 2010).[2]

What are the research findings on implementation of word prediction? Four studies were located that addressed word prediction. All of them examined issues related to using word prediction as an accommodation. Two studies focused on students who had difficulty with spelling or written expression (Cunningham, 2013; Evmenova et al., 2010), one considered students with physical disabilities (Mezei & Heller, 2012), and another concentrated on Hispanic students with learning disabilities, some of whom were former English learners (Silió & Barbetta, 2010).

- All four studies found that students who used word prediction software had fewer spelling errors (Cunningham, 2013; Evmenova et al., 2010; Mezei & Heller, 2012; Silió & Barbetta, 2010).
- Mezei and Heller (2012) found that the use of word prediction programs may reduce spelling errors for middle school or older students with physical disabilities that cause motor fatigue. But, word prediction may not increase their typing speed.
- Two studies found that the use of word prediction in combination with text-to-speech improved performance. Cunningham (2013) found that this accommodations bundle supported students in producing fewer spelling errors and creating more complex sentence forms; Silió and Barbetta (2010) also found this combination beneficial for some Hispanic students with learning disabilities.
- Two studies found that a student's keyboarding proficiency may affect the usefulness of word prediction software. Evmenova (2010) found that students who had greater keyboard proficiency benefited more from using word prediction software than those with limited keyboarding skills, though Mezei and Heller (2012) found that word prediction software may slow typing for students who are faster typists.
- One study found that younger students may benefit less from using word prediction than older students. Evmenova (2010), in a study of students in grades 3 through 6, found that word prediction programs with numerous features may be more challenging for younger students.

What perceptions do students and teachers have about word prediction? Two research studies examined student and teacher perceptions about the use of word prediction.

- Students' opinions varied on whether word prediction helped them save time, make fewer mistakes, or was less tiring, and if they would use word prediction outside of school or at home (Mezei, 2012).
- All students and teachers enjoyed using the word prediction programs and found them beneficial for the writing process. Their preferences varied among the three word prediction programs that were compared (Evmenova, et al., 2010).

What have we learned overall? There is a need for additional research on the use of word prediction. Only four research studies were identified with the most recent published in 2013 (Cunningham, 2013). There have been major technological advances in word prediction software, and new studies are needed. Yet, the limited available literature base indicates that word prediction may be useful either alone or in combination with other accommodations such as text-to-speech. Positive outcomes from using word prediction may include using fewer keystrokes, producing more words, increasing spelling accuracy, and increasing writing rate. For students with physical disabilities, word

prediction may be helpful in decreasing motor fatigue, but may not improve writing speed. Hispanic and culturally linguistically diverse students with disabilities also may benefit from using word prediction. However, no recent studies were identified which examined the use of word prediction by English learners with disabilities, revealing another area where research is needed.

Word prediction should be provided during instruction as well as assessment; students may find it confusing to be provided with word prediction software if they have not previously used it during instruction (Cunningham, 2013; Silió & Barbetta, 2010).

Footnotes

- **[1]**
  Research on word prediction summarized here is also available in NCEO's searchable Accommodations for Students with Disabilities Bibliography (https://nceo.info/Resources/bibliographies/accommodations/bibliography) and in NCEO syntheses of research from 1999 through 2018 (see summaries for: 1999-2001 (https://nceo.umn.edu/docs/OnlinePubs/TechReport34.pdf), 2002-2004 (https://nceo.umn.edu/docs/OnlinePubs/Tech45/Technical45.pdf), 2005-2006 (https://nceo.umn.edu/docs/OnlinePubs/Tech47/TechReport47.pdf), 2007-2008 (https://nceo.umn.edu/docs/OnlinePubs/Tech56/TechnicalReport56.pdf), 2009-2010 (https://nceo.umn.edu/docs/OnlinePubs/Tech65/TechnicalReport65.pdf), 2011-2012 (https://nceo.umn.edu/docs/OnlinePubs/Synthesis94/Synthesis94.pdf), 2013-2014 (https://nceo.umn.edu/docs/OnlinePubs/Report402/NCEOReport402.pdf), 2015-2016 (https://nceo.umn.edu/docs/OnlinePubs/NCEOReport412.pdf), 2017 (https://nceo.umn.edu/docs/OnlinePubs/NCEOReport418.pdf), 2018 (https://nceo.umn.edu/docs/OnlinePubs/NCEOReport423.pdf), 2019 (https://nceo.umn.edu/docs/OnlinePubs/NCEOReport433.pdf). See the reports and online bibliography for additional information about the criteria used to identify studies included in this fact sheet.

- **[2]**
  The only research study found which addressed English learners with disabilities addressed former English learners with disabilities. No research studies were identified that examined the use of word prediction software by current English learners with disabilities.

References

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